

Application No. 10/743,562  
Response Dated April 9, 2008  
In response to Office Action mailed December 10, 2007

### Remarks

The agent for the applicant and the applicant thank the Examiner for the telephone interview held on February 15, 2008. At the interview, the agent for the applicant and inventor Gopal explained the nature of the invention and the differences between the claimed invention and the cited references. Various possible distinguishing features were discussed. In particular, the agent noted that the shrinkable tubing in Sharow is not removed and inquired whether reciting in the independent claims a limitation that the die is removed would overcome the rejections based in part on Sharow. The Examiner indicated that adding such a feature may overcome the rejections based in part on Sharow, if the claims are also limited to forming orthodontic wires and it can be shown that the cited references teach away from the removal of the tubing in Sharow. It is also discussed that a difference between the present invention and the cited art is that the shrinkable die is completely shrunk without being deformed by the composite enclosed in it so that tunnel assumes the pre-defined shape after shrinkage. The agent also indicated that a new declaration would be filed which should remove the Bachmann reference as a citable reference under 35 USC 103(a).

Claims 1 to 5, 7 to 14, and 17 to 23 are pending.

Claims 1, 2, 17, 19 and 21 are amended as discussed below. New claims 22 and 23 are presented for consideration by the Examiner. Support for amendment to claims 1, 2, 17, 19 and 21, and new claim 23 can be found at least at paragraphs [0019], [0021]-[0023], [0026], [0028], [0029], [0035] to [0037], and [0042], and in FIG. 1 (S110). Support for new claim 22 can be found at least at paragraph [0027].

The Examiner stated in the Office Action that the previous declaration by inventor Gopal filed on 28 September 2007 was ineffective for two reasons: (a) the declaration was not signed by all of the inventors and (b) the declaration does not expressly state

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that the inventive activities occurred in either the U.S. or a WTO member country. A new declaration under 37 CFR 1.131 is submitted, which is signed by all the inventors and expressly states that the inventive activities occurred in a WTO member country. Thus, it is believed that the new declaration is effective for removing WO 02/30647 to Bachmann ("Bachmann") as a citable reference under 35 USC 103(a).

Accordingly, it is respectfully requested that all 35 USC 103(a) rejections in view of Bachmann, in whole or in part, be withdrawn, for the same reasons presented in the previous response filed 28 September 2007.

The Examiner has also rejected claims 1-5, 7-8, 12-14, 17, 18 and 21 under 35 USC 103(a) as being unpatentable over Sharro in view of Moraschetti; and claims 9-11, 19 and 20 under 35 USC 103(a) as obvious over Sharro in view of Moraschetti and Gray. It is submitted that amended claims 1, 19 and 21 are patentably distinguishable from Sharro, Moraschetti, and Gray.

Specifically, current claim 1 recites "separating the die from the orthodontic wire." In Sharro, the heat-shrinkable insulating tubes (5-11) are not separated from the conductors (1-3) after they are shrunk. Sharro discloses that the purpose of these insulating tubes is to retain in position any insulating fiber that has broken loose or away from the conductors (see e.g., col. 2, lines 9-15; col. 4, ll. 31-40). Removing the tubes after shrinkage would defeat this purpose. Thus, Sharro teaches away from separating the shrunk tubes from the conductors.

Moraschetti and Gray also fail to disclose or suggest that the Sharro method should be modified to remove the shrunk tubes from the conductors. In particular, Moraschetti does not disclose a shrinkable die. The heat shrinkable tubing 15 in Gray forms part of the intended semi-rigid portion 12 and is thus not separated from the floss article after shrinkage. Separation of the shrunk tubing would defeat its function: forming a semi-rigid portion around a flexible fiber 11.

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Further, current claim 1 is directed to the formation of an “orthodontic wire”. Sharrow is not related to the formation of orthodontic wires. In particular, the coils disclosed in Sharrow are simply not suitable for use as orthodontic wires for various reasons. For example, the glass coating on the exposed portions of the conductors can break loose during use, thus posing serious danger to the user when placed in the user’s mouth. The shrunk tubes on the conductors are segmented (see Figs. 1, 2 and 3 of Sharrow), which are not suitable for dental use. The size of the coils is also too large for orthodontic use. (One of the reasons for separating the die from the orthodontic wire as described and claimed in the present application is that the size of the shrunk die is typically too large for orthodontic use.)

Current Claim 1 also recites that the tunnel has an open end “for allowing removal of excessive resin” and that the tunnel “assumes a pre-defined shape after the die is completely shrunk.” Thus, as claimed, the final shape of the tunnel is pre-defined by the die, not by the shape of the fiber in the tunnel. By contrast, in Sharrow, the tube is not completely shrunk and the final shape of the tube is dictated by the shape of the conductors 1, 2, 3 or coil bundle 4 (see col. 3, line 73 to col. 4, line 8 of Sharrow). When the die is completely shrunk and is still able to assume the shape pre-defined by the die, the fibers within the tunnel will not be tightly compressed toward each other and can stay stress free, as the excess resin is automatically forced out of the open end(s) while shrinking, thus promoting uniform distribution, which in turn enhances the physical properties of the resulting product, as discussed in the specification (see e.g. paragraph [0044]).

Thus, Sharrow, Moraschetti, and Gray do not, either alone or in combination, disclose all of the limitations recited in current claim 1, and claim 1 is believed allowable over the references of record.

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For similar reasons, it is believed that independent claims 19 and 21, and claims dependent from claims 1, 19 or 21 directly or indirectly, are also allowable.

No new matter has been added by this amendment.

In view of the foregoing, reconsideration and allowance of this application is earnestly solicited.

Respectfully submitted,

DINSMORE & SHOHL, LLP

By: /James E. Beyer/  
James E. Beyer  
Registration No. 26,868

One Dayton Centre  
One South Main Street, Suite 1300  
Dayton, Ohio 45402  
Tel: (937) 449-6400  
Fax: (937) 449-6405

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MZ/JJP/kew